

REMARKS/ARGUMENTS

STATUS OF CLAIMS

By this response, claims 1, 15, and 29 are amended, leaving claims 2-14, 17-28, and 30-42 unchanged. Claim 16 was canceled in an earlier Amendment, and claims 5, 7, 10, 14, 19, 21, 24, 28, 33, 35, 38, and 42 were withdrawn in a previous Amendment.

CLAIM REJECTIONS – 35 U.S.C. §103(a)

On pages 2-4 of the Office Action, claims 1-4, 6, 8, 9, 12, 15-18, 20, 23, 29-32, 34, 36, 37 and 40 are rejected under 35 U.S.C. §103(a) as being unpatentable over Armes (U.S. Patent No. 3,240,268) in view of Ostbo (U.S. Patent No. 3,865,185).

Claim 1 calls for:

A stacked plate heat exchanger for transferring heat between at least a first fluid and a second fluid, the heat exchanger comprising:

 a plurality of stacked plates having substantially the same cross-sectional shape taken along a plane crossing each of the plurality of stacked plates, and comprising:

 a first end plate defining at least one fluid connector having a first cross sectional plane located at a first port of the connector and a second cross sectional plane located at a second port of the connector, the first and second planes forming an acute angle relative to each other;

 a second end plate located opposite the first end plate;

 at least one intermediate plate sandwiched between the end plates to provide a surface area for transferring heat between the first and second fluids; and

 a fluid line attached to the connector at the second port to direct one of the first and second fluids between the connector and a component other than the connector. (Amendment marks not shown).

Claim 15 calls for:

A stacked plate heat exchanger for transferring heat between a first fluid and a second fluid, the heat exchanger comprising:

a plurality of stacked plates having substantially the same cross-sectional shape taken along a plane crossing each of the plurality of stacked plates, and comprising:

a first end plate defining at least one fluid connector having a first cross sectional plane located at a first port of the connector and a second cross sectional plane located at a second port of the connector, the first and second planes forming an acute angle relative to each other;

a second end plate located opposite the first end plate;

at least one intermediate plate sandwiched between the end plates to provide a surface area for transferring heat between the first and second fluid; and

a fluid line attached to the connector at the second port located at least partially above and extending over the first end plate to direct one of the first and second fluids between the connector and a component other than the connector.

(Amendment marks not shown).

Claim 29 calls for:

A stacked plate heat exchanger for transferring heat between at least a first fluid and a second fluid, the heat exchanger comprising:

a plurality of stacked plates having substantially the same cross-sectional shape taken along a plane crossing each of the plurality of stacked plates, and comprising:

a first end plate defining at least one fluid connector having a first cross sectional plane located at a first port of the connector and a second cross sectional plane located at a second port of the connector, the first and second planes forming an acute angle relative to each other;

a second end plate located opposite the first end plate;

a stack of intermediate plates sandwiched between the end plates to provide surface areas for transferring heat between the first and second fluids;

a plurality of fluid manifolds in said intermediate plates to direct the first and second fluids to said surface areas; and

a fluid line attached to the connector at the second port to direct one of the first and second fluids between the heat exchanger and a component other than the heat exchanger.

(Amendment marks not shown).

In contrast, Armes discloses a heat exchanger having a stack 10 of thin plates 16, 18, 20 located between two heavy plates 12, 14 (col. 1, lines 45-49) having a different shape than the thin plates, wherein openings 42, 44, 46, 50 of the differently-shaped heavy plates 12, 14 are each fitted with an inlet or outlet conduit 42', 44', 46', 50' extending from the heavy plate 12, 14. However, on page 2 of the Office Action, two of the thin plates 16 and 18 are identified as

corresponding to the first and second end plates claimed in 1, 15, and 29, whereas one of the heavy plates 12 is identified as corresponding to the connector in claims 1, 15, and 29. With this correspondence of elements (and as recognized by the Examiner), the “connector/plate” 12 has a plate-like structure including a planar surface. Accordingly, Ostbo is cited for its disclosure of an inlet and outlet having an acute angle formed between two cross-sectional planes of a connector.

However, Armes and Ostbo both teach end plates or walls having substantially different cross-sectional shapes than any plates therebetween. In particular, the thin plates 16, 18, 20 of the Armes heat exchanger are in no way similar to the heavy plates 12, 14. Similarly, the end walls 4,5 of the heat exchanger disclosed in Ostbo do not have substantially the same cross-sectional shape as the circular metal discs 8.

The Applicant notes that heavy plates 12, 14 of the heat exchanger disclosed by Armes cannot fairly be compared to the end plates claimed in amended claims 1, 15, and 29, based at least in part upon the fact that the heavy plates 12, 14 do not have a cross-sectional shape that is substantially similar to the thin plates 16, 18. It should also be noted that none of the thin plates 16, 18, 20 can fairly be compared to an end plate as claimed in amended claims 1, 15, and 29, as none of the thin plates 16, 18, 20 define a fluid connector as claimed in amended claims 1, 15, and 29.

Thus, neither Armes, nor Ostbo, nor any combination of the two disclose, teach, or suggest, among other things, a stacked plate heat exchanger having a plurality of stacked plates with substantially the same cross-sectional shape taken along a plane crossing each of the plurality of stacked plates, a first end plate defining at least one fluid connector, and a connector having a first cross sectional plane located at a first port of the connector and a second cross sectional plane located at a second port of the connector, wherein the first and second planes form an acute angle relative to each other, as claimed in amended claims 1, 15, and 29.

In light of the above comments and for other reasons not discussed herein, withdrawal of the 35 U.S.C. §103(a) rejection of claims 1, 15, and 29 over Armes in view of Ostbo is respectfully requested.

Claims 2-4, 6, 8, 9, and 12 depend from claim 1, and are allowable based on independent claim 1 and upon other features and elements claimed in claims 2-4, 6, 8, 9, and 12 but not discussed herein. Claims 17-18, 20, and 23 depend from claim 15, and are allowable based upon independent claim 15 and upon other features and elements claimed in claims 17-18, 20, and 23 but not discussed herein. Claims 30-32, 34, 36, 37, and 40 depend from claim 29, and are allowable based upon independent claim 29 and upon other features and elements claimed in claims 30-32, 34, 36, 37, and 40 but not discussed herein. Withdrawal of the 35 U.S.C. §103(a) rejection of claims 2-4, 6, 8, 9, 12, 17-18, 20, 23, 30-32, 34, 36, 37, and 40 is therefore respectfully requested.

On page 4 of the Office Action, claims 11, 13, 25, 27, 39, and 41 are rejected under 35 U.S.C. §103(a) as being unpatentable over Armes in view of Ostbo, and further in view of Wright (U.S. Patent No. 3,690,373). Claims 11, claims 13, 25, and 27, and claims 39 and 41 depend from claims 1, 15, and 29, respectively, and are allowable based upon claims 1, 15, and 29 and upon other features and elements claimed in claims 11, 13, 25, 27, 39, and 41 but not discussed herein. Withdrawal of the 35 U.S.C. §103(a) rejection of claims 11, 13, 25, 27, 39, and 41 over Armes in view of Ostbo and Wright is therefore respectfully requested.

CONCLUSION

In view of the foregoing, it is respectfully submitted that claims 1-4, 6, 8, 9, 11-13, 15, 17, 18, 20, 22-23, 25-27, 29-32, 34, 36, 37, and 39-41 are in condition for allowance. The Applicant requests that the Examiner telephone the attorneys of record in the event a telephone discussion would be helpful in advancing the prosecution of the present application.

Respectfully submitted,



Christopher B. Austin
Reg. No. 41,592

Attorney Docket No.: 022230-9026-00
Michael Best & Friedrich LLP
100 East Wisconsin Avenue, Suite 3300
Milwaukee, Wisconsin 53202-4108
414.271.6560